A Teaching Resource of
The Common Heritage Programme

A guide to

CHANGING ENVIRONMENTS, CHANGING PEOPLES

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A guide to

CHANGING ENVIRONMENTS, CHANGING PEOPLES

For Readers and Teachers

Developed by
Brian Murphy
and
Moyra Tooke
for
Inter Pares, Ottawa

Produced by
Teachers' Press Ltd.,

The Global Issues Series is a component of *The Common Heritage Programme*, a learning resource for teachers and students. *The Common Heritage Programme* is an exploration of contemporary environmental, social and economic issues from an international perspective. The Programme contains elements designed for all levels, primary to post-secondary.

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FOR THE TEACHER

Changing Environments, Changing Peoples is the first resource book in the series *Background Readings in Selected Global Issues*, an integrated programme of study leading to student seminars and discussion on major environmental, social, economic and political global concerns. This seminar series is less about facts than about ways of thinking about facts, and the implications behind them. The aim of this series is to provide the general basis of information which allows the student to research, report, and defend conclusions on the significant and complex issues of our times. The skills stressed are: (a) identifying the facts and implications of some global issues, (b) presenting a clear account of the issues and their implications, and above all, (c) formulating and defending considered judgements about these issues.

The series as a whole consists of four major elements, all inter-related, but each a complete and separate unit of work in itself. These are:

1. *Time to Decide*: a slide-cassette tape presentation designed to be a general introduction to some global issues. The unit is an ideal lead-in to the study of the resource books.

2. Four resource booklets, *Background Readings in Selected Global Issues:*
   a. *Changing Environments, Changing Peoples*
   b. *The Common Heritage: Oceans and Outer Space*
   c. *The North-South: World in Development*
   d. *Satellites and Societies*
   Technology, Communications and the Future

3. Teachers Guides (available separately or for whole unit)

4. Additional documentary resources to keep the resource books up-to-date.

The series has been developed to provide the utmost flexibility in teaching. Each booklet can be used as a basic resource for individual work on each of the sections or as a total resource for group seminar research and presentation (including debate) on the broad topic of the book. The books can be used in any combination to allow for richer learning and discussion since the subjects in each are inter-related.

The readings can be used as the sole basis of research or can be used as a starting point to define areas of further study and activity, again on an individual or shared basis. The selections can be used with the principal emphasis on information retrieval, interpretation and synthesis to reach conclusions, or with the broader emphasis of presentation and defense. In this sense, they can be

used as a component of a language and communication unit or of a social science unit; ideally they will be used as a combination of both.

The questions in the booklets and in this guide are constructed to allow this scope and flexibility; they are phrased (a) to assist in a thorough review of the section; (b) to assist in developing work activity as a follow-up; and (c) to lead to activities which make a logical contribution to a total group seminar.

Background Readings in Selected Global Issues is intended as an ongoing series with new booklets added from time to time to provide teachers with basic background materials on major issues as they emerge. A number of booklets are already in the planning stage. As these become available, supplementary sections of this Teacher's Guide will also be prepared to accompany the readings.

In addition, a bank of up-to-date background material on the Global Issues Series is being maintained as a resource for teachers using this series. Teachers who wish to receive updated material on specific topics to supplement the basic documents in the booklets may do so by writing to:

Teachers' Press Ltd.,
200 Isabella Street,
Ottawa, Ontario, K1S 1V7

A nominal fee for copying and mailing will be charged.

The authors of this series welcome your comments, ideas and suggestions for the improvement of this guide in its present form.

Section One

THE VANISHING RAIN FORESTS

It is estimated that roughly half the earth's forests have disappeared since 1950 and the bulk of the destruction has been in tropical zones. At this rate, more than two-thirds of the world's remaining rain forests may be gone by the turn of the century, scientists tell us. Is this "an unprecedented ecological disaster with economic consequences as serious as the oil crisis" — or is it, as others see it, the logical inevitable development of one of the world's last frontiers for agriculture and mineral resources?

1. THE GLOBAL PROBLEM

This excerpt outlines the scope and significance of the problem of the vanishing rain forests, briefly touching on the major "local" consequences, and major global consequences, of the apparent impending elimination of the rain forests.

1. Find explanations for the following terms or phrases as they are used in the context of this article:

Paragraph 1: ecological zone; biome (ecological community); 150 000-250 000 km^2 as a proportion of 9 million km^2; Zaire Basin; Brazilian Amazonia (see pages 5 and 7 of text).
4: foreign exchange; developing world.
5: Green Revolution.
8: cornucopia.
9: genetic engineering: "topping-up" with fresh germ plasm.

2. What is the present extent of rain forests on the globe? What proportion of that does the author estimate is lost every year?

3. The author states that the exact rate of rain forest elimination is a matter of controversy, but does not tell us why. Suggest reasons why the rate is difficult to determine.

4. In this author's estimation, how many animal species exist on earth? How many of these live in tropical moist forests?

5. Name some of the important crops which the author claims have been saved by using the genetic resources of tropical forests.

6. The article outlines six possible major consequences of the impending elimination of rain forests; two of these are local and four global. Outline these consequences in your own words.

7. How might rain forest elimination affect North America? Should you be concerned about this global problem? Why?

Suggested activities

A. Although the description of the global problems in the article is brief it shows the complexity of the consequences. In a group or individually, students might explore more thoroughly through research the six consequences of deforestation with a view to presenting them to the class.
B. Students can be asked to prepare a world map which illustrates the concentrations of tropical rain forests, as well as the climatic conditions (rain, temperature zones etc.)

3. SCIENCE AND THE AMAZON

This article presents the position of the Government of Brazil and the concern in official circles about development of the Amazon Basin. The students should be reading this article with the view of assessing the degree to which it addresses the issues raised in Reading No. 1 concerning the consequences of wide-scale deforestation.

1. Find explanations for the following terms or phrases in the context of this article.
   Paragraph 1: ecosystems.
   5: paradoxical.

2. The author says that the tropical rain forest is "not alive with animals", defending the statement with the statistic that the animals living in one hectare of the Amazon rain forest "would weigh a mere 0.2 tonnes". How might you reconcile this claim with the statement found in reading No. 1 that 40-50% of all animal species on earth are thought to live in tropical moist forests?

3. What common ideas about tropical rain forests does the author challenge?

4. Explain or illustrate the statement, "the life of the rain forest is divided horizontally into a series of bands".

5. "One of the Amazon's curious mysteries is how such rich vegetation can grow in such infertile soil." What is the explanation? (see page 12)

6. What two 'fears' does the author ascribe to the Brazilian government at the time it began construction of the Trans-Amazonian Highway in 1970? Describe the previous experience that provided some grounds for these fears.

7. How is the Brazilian government avoiding similar mistakes in its present development? Do you feel these measures are adequate, given the concerns raised in the first article?

Suggested activity

Students should read the next article, *The Rape of Amazonia*, immediately. Effective discussion could then be built around a comparison of the two articles, since their style and perspective are in contrast.

4. THE RAPE OF AMAZONIA

This article is written by a journalist. Judgements made are presented and defended forcefully. Students should be reading this article as a counter-balance to the preceding one, aware that soon they will be expected to sift through the variance of data and opinion to arrive at their own conclusions on this issue.

1. Find explanations for the following terms or phrases in the context of the article:
   Paragraph 2: crepuscular.
   5: napalm.
   7: photosynthesis.
   10: humus; laterite; equilibrium.
   12: programmed by evolution.
   17: aseptic planning.
   18: absolute poverty; relative poverty.

2. How large is the Amazon rain forest? What percentage of the world's trees grow there?

3. The first element of the forest this writer discusses is the large number of Indians — up to 40 000 — who live there. The author of the previous article does not mention indigenous peoples. What may account for the omission?

4. How much of the forest had been destroyed by 1970? Describe how the clearing is being done so quickly.

5. What are the concerns about climatic change?

6. Outline the revelations recently made by the Max Planck Institute. What are the possible effects related to oxygen and carbon dioxide? Why is it difficult to be certain of such effects?

7. Explain the process by which a deforested area can turn to "instant desert."

8. How is the Brazil nut a good example of the effects of deforestation on fragile ecologies?

9. Assess whether Amazon development in the long run will help all the people of Brazil. Specifically, will it relieve the problems of the poor?

10. This article calls the burning of the forest "the greatest ecological disaster in world history". Given the readings so far, evaluate this statement.

Suggested activities

A. Students might summarize the differences in purpose, point of view and style between this reading and the previous one, quoting examples to illustrate.

B. Review the three readings up to this point and list basic facts which are common to all three and which may be contradictory.
C. After research, students might give an account of the extent and value of Canadian forests and their importance environmentally, economically and socially, assessing whether Canada has a potential problem of deforestation.

5. THE JIVARO: A PEOPLE OF THE RAIN FOREST

Previous articles have made some reference to the indigenous people of the Amazon. This excerpt is a study of one tribe, the Jivaro, and describes and defines an 'adaptive society.' The reading will help students to understand why development in the Amazon rain forest is devastating to the indigenous peoples.

This reading and the next two should be read in sequence.

1. Describe how the way of life of the Jivaro is integrated with the rain forest environment, not only in food gathering and shelter but in the work done by men and women, and in the mythology of the people.

2. Do the Jivaro have skills that could help them to survive in a different environment? What skills would they have to learn in order to live in a city?

3. Should their way of life be preserved in the modern world?

AMAZONIAN INDIAN TRIBE FACE DESTRUCTION (inset, p.24)

This newspaper excerpt describes the establishment of Indian reserves, a term familiar to North Americans.

1. Could the Yanomami survive in small reserves?

2. Discuss the potential success or failure for this policy in the light of our own experience in North America.

6. AMAZONIA: THE NEW WHITE PROMISED LAND?

This article explores a new initiative by some South American governments to conserve the Amazon.

1. Find explanations for the following terms or phrases used in the context of this article:
   Paragraph 4: gene pools
   6: beleaguered; exodus

2. Why might the Bolivian government be so eager to recruit South African whites as settlers? Why does the author consider that a large influx of African whites will have grim social and political consequences?

3. Apart from the possible effect on indigenous peoples, is this pact between South American whites beneficial? What factors, or what attitudes of government, will be needed to make it succeed?

Suggested activities

A. Students could form research and debate teams to develop and defend positions on the statement: 'The development of the Amazon rain forest will have economic and social benefits that will offset its potential as an ecological disaster'.
B. Students might approach the United Nations, or national or international coalitions of aboriginal peoples, to try to collect an overview of aboriginal activities and arguments about the issues discussed in the last few articles.
C. Students can be divided into groups to role-play negotiations about the development of an area. The groups could consist of members of:
   1. A native council
   2. A government
   3. A large corporation interested in developing the area
   4. White environmentalists — supporters of the native people.

Each group should prepare and present their position, with the rest of the class asking questions and making judgements.

Section Two

THE SEARCH FOR HYDRO-ELECTRIC POWER

Energy is fundamental to industrial growth. Developed and developing nations alike search for new ways to power the wheels of progress, power for new industries, for new standards of comfort. One of the oldest and favorite sources of energy is hydro-electric power, the damming of rivers to create man-made lakes and control the flow of water.

Hydro power is cheap, makes efficient use of one of nature's great natural resources, for mans benefit. Few of the great rivers of the world remain to be tampered with.

7. SUPERDAMS — THE PERILS OF PROGRESS

This excerpt outlines some of the main issues and problems which have arisen as a result of the development of massive hydroelectric dams.

1. Explain the following terms or phrases in the context of this article:
   Paragraph 4: F.A.O.; predatory
   6: Rube Goldberg contraption
   8: silt up; transpire
   12: aquatic food chain.

2. What are possible reasons for reduced fish catches in the lakes created by the superdams?

3. Man-made lakes encourage the growth of the water hyacinth: What are some of the effects of the water hyacinth?

4. Why is there less water available from these dams than was originally planned?

5. Describe some of the potential effects on the surrounding area and peoples when a dam is built.

6. A big hydro-electric project is designed to produce huge amounts of power. This author appears to argue the power is not worth the cost. Explain whether or not you agree, and why.

7. The author says, "It is curious but true that such calculations simply weren't made until quite recently." Why do you think this is so?

Suggested activities

A. Using reference sources, students could describe the life cycle of the water hyacinth and compare its scientific description with its impact as outlined in this article.
B. Students could make a blank outline map of the world, showing the major river systems and the location of some of the major hydro dams. Which rivers are future logical targets for hydro-electric development and what are some environmental, social or economic pressures which might cause nations to create dams on these remaining rivers. Which rivers in Canada are present and possible sources of hydro power? What plans are being made for any further hydro development, on which rivers (for example, the Liard)?
C. Students might illustrate and describe the basic mechanism of the hydroelectric dam. What are the advantages and disadvantages of hydroelectric as compared with other forms of power?

8. THE ASWAN DAM: BOON OR BUST?

This excerpt is an example of the general problems and issues discussed in the previous article.

1. Find explanations for the following terms or phrases as they are used in the context of this article:
   Paragraph 5: bilharzia

2. The author suggests that the Aswan Dam may have produced calamity rather than prosperity. What five negative effects of the Dam does he cite as reasons for his belief? What positive results have come from the Dam?

3. What plans for new development does the Egyptian government have? Do they have foreseeable ecological and social impacts?

4. What are some of the effects of the Aswan Dam which bear out the arguments in the previous article (reading 7)?

Suggested activities

Through research students might attempt to show the environmental, social and economic importance of the Nile River before the building of the Aswan Dam, and show what the Aswan Dam intended to do and assess its' success or failure.

9. THE JAMES BAY POWER PROJECT

and

10. THE CREE CAMP

A few remaining undammed rivers of the world are in Canada: the pressures for development, though different, are just as great. The James Bay Power Project discussed in this article (9) when it was first being proposed, shows the ecological and social decisions that Canadians must make in this development. Together with No. 10, The Cree Camp, it offers a comparative study of different environments and adaptive societies, as well as different reasons for development.

1. Find explanations for the following terms or phrases in the context of this article:
   Paragraph 1: precambrian rock of the Canadian Shield; continental region
   4: taiga or open boreal forest
   8: littoral spawners

2. Find on a map of Quebec the rivers mentioned in the text and roughly outline the area affected by the proposal. Describe the major reason for the decision to flood the area.

3. List the animals and plants affected by James Bay Development, and the ways in which they will be affected.

4. The Cree, like the Jivaro, are an "adaptive" people. Explain the similarities in the way both peoples live, and account for the differences.

5. Are the Cree better suited to live in a technological age than the Jivaro? Explain.

Suggested activities

After getting information from the Department of Indian Affairs, Native groups, the James Bay Power Corporation, etc., students could assess the present status of the James Bay Power Project and the Cree people with a view to deciding whether these authors were right to be concerned.

11. THE GREAT RESOURCE ROBBERY

In the same way that readings 1 and 7 summarize the global implications of the issue being discussed, this reading takes a global look at what is happening to indigenous societies caught in the path of environmental change.

1. Find explanations for the following terms or phrases used in the context of this article:
   Paragraph 1: inviolate environments; pastoral nomads; hunter gatherers; primitive cultivators
   2: multinational corporation; international development agencies
   3: genocidal
   5: subsistence production
   8: monopolies; primary producers
   13: inalienable land rights

2. Summarize both sides of the dilemma outlined in this article.

3. Outline the three main adaptive societies described on the basis of how they get food. To which group would the Jivaro and the Cree belong? From the article find examples of others.

4. Why are aboriginal peoples rarely considered in plans for environmental development?

5. What actions are open to a small cultural minority, when their land and way of life is changed by ''progress''?

6. Native peoples are working to prepare a charter of claims and rights. In our own case should the native peoples such as the Inuit, Yukon Indians, the Dené, etc., be given control over their traditional environments?

Suggested activities

Using this and any other readings in the book students might give a brief opinion in answer to the following:

(a) should 'previous hostile' environments be developed for resources or left intact as wilderness areas?

(b) do indigenous people who have traditionally adapted to these environments have an inalienable right to them?

We can send you:

- additional resource documentation for discussion and up-to-date information on the issues in this book.

- additional photographs and slides, and cassette taped interviews with experts in this field.

We can bring our global issues exhibition 'Questions of Growth' — a forum for teacher discussion on curriculum planning and classroom strategies for teaching for the world of tomorrow.

For more information write to us at

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200 Isabella Street
Ottawa, Ontario
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Inter Pares

Inter Pares is a non-profit voluntary international development agency which provides assistance to community-based, self-help development projects conducted by local groups in a number of Third World countries, particularly Asia, Africa and the Caribbean. In addition to its overseas activities, Inter Pares promotes public awareness and understanding within Canada of global development issues, and Canada's interdependence with other nations of the world.

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